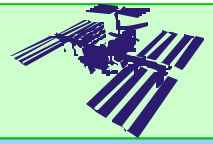
ISS Research Accommodations Status

14 October 2005 (Data through 30 September 2005) *[POC: Dan Hartman/OZ]*



Research Resources

METRIC TYPE	STATUS	ORGANIZATION	ACCOUNTABLE POC	UPDATED
Manager's Level Performance Indicator	R	OZ	Hartman	10/14/05

DESCRIPTOR

- The Research Resources Indicator shows the Program's performance in accommodating the mission need for Research Crew Time and Research Supplies in Middeck, as well as the Program's performance in achieving the requirements and commitments for Research Crew Time and Research Supplies in Middeck.
- Note: The overall "Research Resources" status is determined by the status of the most constraining of the two supporting resources: research crew time and research supplies in middeck (and Soyuz/Progress).

STATUS DETAIL

- **Research Crew Time: Red**
  - R Incr 10: Total Actuals Provided vs. Total Minimum Requirement = 42%
  - R Incr 10: Total Actuals Provided vs. Total MIOCB Target = 85%
  - R Incr 10: U.S. Share Actuals Provided vs. U.S. Share Mission Need = 27%
  - R Incr 11: Total Allocation Closest to Incr vs. Total Minimum Requirement = 37% *(was 37%)*
  - R Incr 11: Total Allocation Closest to Incr vs. Total MIOCB Target = 73% *(was 73%)*
  - R Incr 11: U.S. Allocation Closest to Incr vs. U.S. Share Mission Need = 32% *(was 32%)*
  - R Incr 12: Total Allocation Closest to Incr vs. Total Minimum Requirement = 47% *(was 123%)*
  - G Incr 12: Total Allocation Closest to Incr vs. Total MIOCB Target = 93% *(was 245%)*
  - R Incr 12: U.S. Allocation Closest to Incr vs. U.S. Share Mission Need = 27% *(was 72%)*
- **Research Supplies in Middeck *(and Soyuz/Progress)*: Red**
  - R 9S: 0% Required Upmass launched.
  - R 16P: 14% Required Upmass launched.
  - R 17P: 27% Required Upmass launched.

Research Supplies (cont'd):

- R 10S: 0% Required Upmass launched.
- G 18P: 100% Required Upmass launched.
- R LF1: 67% Required Upmass launched.
- R 19P: 0% Required Upmass launched.
- R ULF1.1: 64% "L-12" Required Upmass accommodated and 61% "L-12" Required Upmass allocated.

PERFORMANCE INDICATOR METRICS

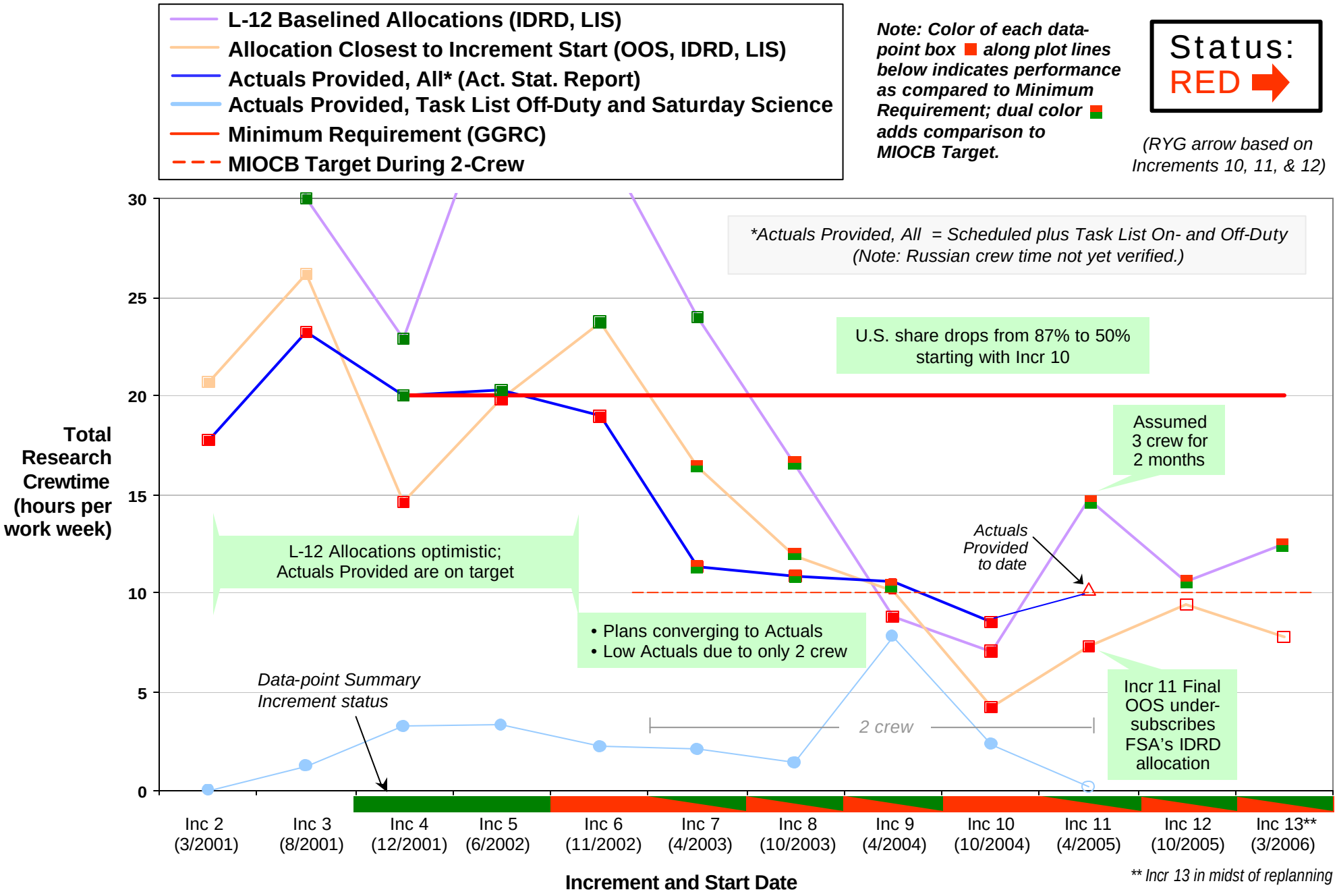
Metrics / Performance Information

TOTAL RESEARCH CREW TIME

14 October 2005 (Data through 30 September 2005)

Allocations and Actuals Provided as Compared to Minimum Requirement

[POC: Dan Hartman/OZ]

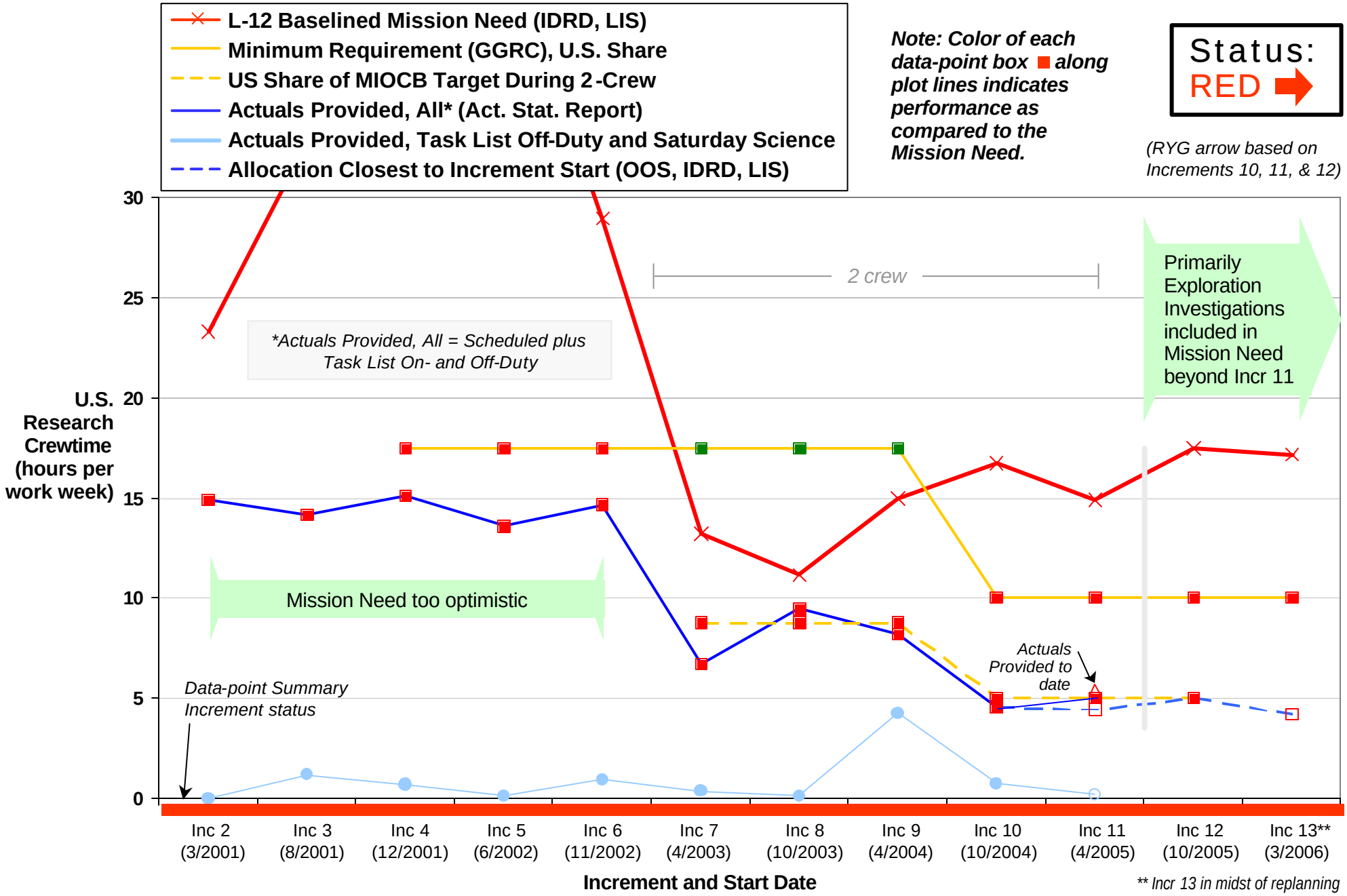


U.S. RESEARCH CREW TIME

14 October 2005 (Data through 30 September 2005)

Minimum Requirement and Actuals Provided as Compared to L-12 Mission Need

[POC: Dan Hartman/OZ]



RESEARCH SUPPLIES IN MIDDECK (and SOYUZ/PROGRESS)

Compared to the 12-Month Plan

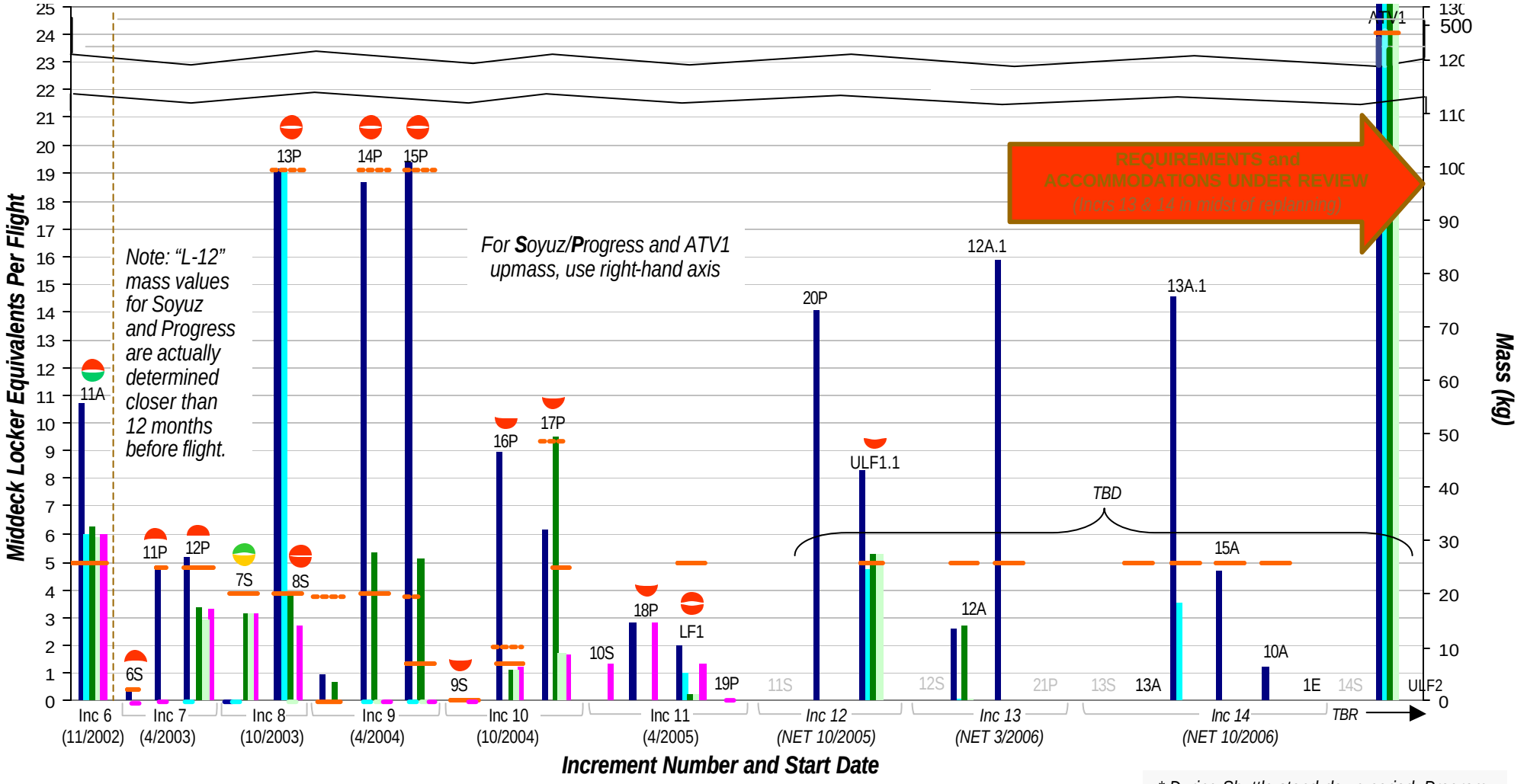
14 October 2005 (Data through 30 September 2005) *[POC: Dan Hartman/OZ]*

Status: RED

(RYG arrow based on Increments 10, 11, & 12)

Research Requirements Status (Incr 10): **Red**
Research Requirements Status (Incr 11): **Red**
Research Requirements Status (Incr 12): **Red**
Program Manager Mass Allocation* Status: **Red**
Minimum ISS Middeck Commitment Status: **Red**

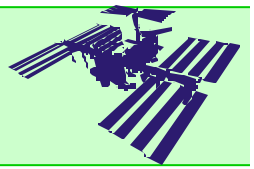
L-12 REQUIRED UPMASS/ MLEs as compared to:	*Increment 10*			*Increment 11*				*Increment 12*			*Increment 13*			
	9S	16P	17P	10S	18P	LF1	19P	11S	20P	ULF1.1	12S	12A	12A.1	21P
Most Recent Allocation*	0%	15%	78%	0%	0%	100%	0%	--	0%	60%	--	100%	31%	
Most Recent Planned Accommodation	0%	12%	28%	0%	0%	10%	0%	--	--	40%	--	0%	0%	--
Actual Amount Launched	0%	14%	27%	0%	100%	67%	0%	--	--	--	--	--	--	--



** During Shuttle stand-down period, Program Manager Mass Allocation is tracked instead of ISS Middeck Commitment status.*

TOTAL RESEARCH CREW TIME
Metrics Definitions, Sources, and Status Levels

14 October 2005 (Data through 30 September 2005) *[POC: Dan Hartman/OZ]*



Total Research Crewtime (hours per work week): The time that the ISS crew performs research tasks for all ISS Partners' investigations, including time both within and outside of the crews' schedulable work hours. Weekly times are the total Increment crew time divided by the number of Work Weeks.

Work Week: The number of 5-day Work Weeks in an Increment, excluding joint operations (Shuttle and Soyuz), weekends, and holidays.

L-12 Month Baselined Accommodation [IDRD/LIS]: Amount of crew time accommodated for research 12 months prior to the start of the Increment.

Source: Increment Definition and Requirements Document for Planning Period X, Main Volume, Table 4.2-1, Crew Time Allocations, row reading "Allocation to Utilization." Also, Lead Increment Scientist.

Allocation Closest to Increment Start [OOS, IDRD, LIS]: Amount of crew time accommodated for research most recently published prior to the start of the Increment.

Source: Final Integrated On-Orbit Summary, i.e., most recently published prior to the start of the Increment, , typically at L-1 month. Also, Increment Definition and Requirements Document for Planning Period X, Main Volume, Table 4.2-1, Crew Time Allocations. Also, Lead Increment Scientist

Actuals Provided (Act Stat Report): Amount of crew time actually devoted to research during the entire Increment, including both Scheduled time and time spent executing research activities on the Task List, divided by the number of 5-day Work Weeks.

Source: Activity Status (Act Stat) Report (from JSC) and Summary Crew Tracking Matrix, provided weekly by the Payload Operations Integration Center at MSFC.

Minimum Requirement (GGR&C): The minimum value of research crew time committed by the ISS Program Manager.

Source: Generic Ground Rules and Constraints.

MIOCB Target During 2-Crew: The Mission Integration Operations Control Board establishes a target value for research crewtime for use in planning and executing during Increments when only two crewmembers are aboard ISS.

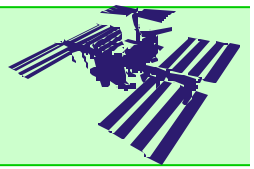
Source: MIOCB Minutes

MOD Prediction: The predicted allocation of research time established by the Mission Operations Directorate after L-12 Baselined Allocations are published but before the On-Orbit Summary is established.

Source: MOD

TOTAL RESEARCH CREW TIME:
Metrics Definitions, Sources, and Status Levels

14 October 2005 (Data through 30 September 2005) *[POC: Dan Hartman/OZ]*



Incremental Status Level Definitions

With respect to performance as compared to Minimum Requirement, if the most recent data point among L-12 Baselined Allocations, Allocations Closest to Increment Start, or Actuals Provided is:

- Above the Minimum Requirement of 20 hours per work week, then the Increment performance box is **Green.**

- Below the Minimum Requirement of 20 hours work week, then the Increment performance box is **Red.**

With respect to performance as compared to MIOCB Target During 2-Crew, if a point along L-12 Baselined Allocations, Allocation Closest to Increment Start, or Actuals Provided is:

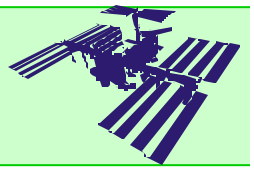
- Above the MIOCB Target During 2-Crew of 10 hours per work week, then the Increment box performance is **Green.**

-Below the MIOCB Target During 2-Crew of 10 hours per work week, then the Increment box performance is **Red.**

Summary Increment Status: The performance status of the most recent data point for each Increment as compared to both Minimum Requirement and MIOCB Target During 2-Crew.

U.S. RESEARCH CREW TIME:
Metrics Definitions, Sources, and Status Levels

14 October 2005 (Data through 30 September 2005) *[POC: Dan Hartman/OZ]*



U.S. Research Crewtime (hours per work week): The time that the ISS crew performs research tasks for all U.S. and U.S.-sponsored investigations, including time both within and outside of the crews' schedulable work hours. Weekly times are the total Increment crew time divided by the number of Work Weeks.

Work Week: The number of 5-day Work Weeks in an Increment, excluding joint operations (Shuttle and Soyuz), weekends, and holidays.

L-12 Baselined Mission Need [IDRD/LIS]: Required U.S. research crew time defined approximately 12 months prior to the start of the Increment.

Source: Increments 0 through 6: Increment Definition and Requirements Document for Planning Period X, Main Volume, Table 4.2-1, Crew Time Allocations, row reading "Amount subscribed by payloads;" Increments 7 and higher: Increment Definition and Requirements Document for Planning Period X, Annex 5, Increment X Payload Tactical Plan, Table 9.0-1 Increment X United States On-Orbit Utilization Complement. Also, Lead Increment Scientist.

Minimum Requirement (GGR&C), U.S. Share: The minimum value of research crew time committed by the ISS Program Manager. Computed by multiplying the minimum weekly average commitment by U.S. share percentage for an Increment.

Calculation based on 17.5 hours per week average for U.S. and U.S.-sponsored investigations during Increments 4 through 6; 8.75 hours per week average during Increments 7 through 9; 5 hours per week average during Increment 10 and first half of Increment 11; 10 hours per week average during second half of Increment 11 and beyond.

Source: Hours: Generic Ground Rules and Constraints.

U.S. Share of MIOCB Target During 2-Crew: The Mission Integration Operations Control Board establishes a target value for research crewtime for use in planning and executing during Increments when only two crewmembers are aboard ISS.

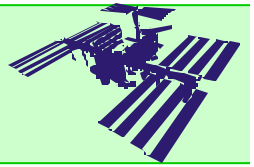
Source: MICOB Minutes

Actuals Provided [Act Stat Report]: Amount of crew time actually devoted to U.S. research during the entire Increment, including both Scheduled time and time spent executing research activities on the Task List.

Source: Activity Status (Act Stat) Report (from JSC) and Summary Crew Tracking Matrix, provided weekly by the Payload Operations Integration Center at MSFC.

U.S. RESEARCH CREW TIME:
Metrics Definitions, Sources, and Status Levels

14 October 2005 (Data through 30 September 2005) *[POC: Dan Hartman/OZ]*



Allocation Closest to Increment Start [OOS, IDRD, LIS]: Amount of U.S. crew time accommodated to research most recently published prior to the start of the Increment.

Source: Final Integrated On-Orbit Summary, i.e., most recently published prior to the start of the Increment, , typically at L-1 month. Also, Increment Definition and Requirements Document for Planning Period X, Main Volume, Table 4.2-1, Crew Time Allocations; and Lead Increment Scientist

Priority Exploration Investigations: The set of research investigations whose objectives and results are considered more directly aligned with supporting the development and advancement of the Vision for Space Exploration. Priority requirements are communicated by the Exploration Systems Directorate and Space Operations Mission Directorate to the Research Program Working Group, which integrates these requirements and provides an overall ranking for manifesting.

Incremental Status Level Definitions

With respect to performance as compared to L-12 Baselined Mission Need, if a point along Min. Requirement U.S. Share, Allocations Closest to Increment Start, or Actuals Provided is:

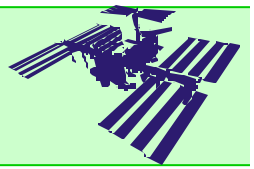
- Above the L-12 Baselined Mission Need, then the Increment performance box is **Green.**

-Below the L-12 Baselined Mission Need, then the Increment performance box is **Red.**

Summary Increment Status: The performance level (Red or Green) of Actuals Provided. If Actuals Provided are not yet available, then the performance level of Allocation Closest to Increment Start is used.

U.S. RESEARCH SUPPLIES IN MIDDECK (and SOYUZ/PROGRESS): Metrics Definitions, Sources, and Status Levels

14 October 2005 (Data through 30 September 2005) *[POC: Dan Hartman/OZ]*



Research Supplies in Middeck

The number of research middeck lockers and other research supplies and equipment launched in the middeck on each shuttle flight to the ISS. Measured in middeck locker equivalent (MLEs), I.e., the number of volumes equal to the volume of a middeck locker. The middeck is used primarily to transport perishable research samples and equipment to and from the ISS.

L-12 Month Requirement: Required middeck volume defined 12 months prior to the planned launch of the first Shuttle flight in an Increment.

Source: Increments 0 through 4: Increment Definition and Requirements Document for Planning Period X, Main Volume, Table 5.0-2 Ascent/Descent Utilization Manifest Summary; Increments 5 and higher: Increment Definition and Requirements Document for Planning Period X, Annex 5, Payload Tactical Plan Manifest, PMIT Ascent Payload Summary.

L-12 Month Baselined Accommodation: Volume of the number of middeck lockers (in MLEs) accommodated to research 12 months prior to the planned launch of the first Shuttle flight in an Increment.

Source: Increment Definition and Requirements Document for Planning Period X, Main Volume, Table 5.0-1, Ascent/Descent Accommodation Summary.

Most Recent Requirement: Required middeck volume most recently published prior to the planned launch of the first Shuttle flight in an Increment.

Source: Increments 0 through 4: Increment Definition and Requirements Document for Planning Period X, Main Volume, Table 5.0-2 Ascent/Descent Utilization Manifest Summary; Increments 5 and higher: Increment Definition and Requirements Document for Planning Period X, Annex 5, Payload Tactical Plan Manifest, PMIT Ascent Payload Summary.

Most Recent Baselined Accommodation: Volume of middecks accommodated to research most recently published prior to the planned launch of the first Shuttle flight in an Increment.

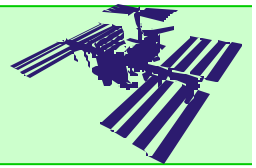
Source: Increment Definition and Requirements Document for Planning Period X, Main Volume, Table 5.0-1, Ascent/Descent Accommodation Summary.

Actuals: Volume of middecks containing research utilization equipment actually launched on each Shuttle flight during an Increment.

Source: Increments 0 through 4: Increment Definition and Requirements Document for Planning Period X, Annex 5, Payload Tactical Plan Manifest Summary, Ascent Summary; Increments 5 and higher: As Flown Rack Layout from the Crew Compartment website.

U.S. RESEARCH SUPPLIES IN MIDDECK (and SOYUZ/PROGRESS): Metrics Definitions, Sources, and Status Levels

14 October 2005 (Data through 30 September 2005) *[POC: Dan Hartman/OZ]*



Minimum ISS Middeck Commitment: The minimum value of research supply volume in the Middeck committed by the ISS Program Manager.

Program Manager Mass Allocation: During the Shuttle down-time following the Columbia STS-107 accident, the ISS Program Manager is allocating a certain amount of upmass for research on the Soyuz and Progress flights. This allocation is made prior to joint approval with Roscosmos.

Research Supplies in Soyuz and Progress: During the Shuttle down-time following the Columbia STS-107 accident, all research supplies were launched on Soyuz or Progress vehicles. Requirements, allocations, accommodations, and actuals are shown.

Status Level Definitions

Research Requirements Status =
Most Recent Accommodation or Actual ÷ L-12-month Requirement

- Most recent accommodations (or actuals) are:

Green: At least 90% of L-12-month requirement.

Yellow: 80-90% of L-12-month requirement.

Red: Less than 80% of L-12-month requirement.

Minimum ISS Middeck Commitment Status =
Most Recent Accommodation or Actual ÷ Minimum Commitment

- Most recent accommodations (or actuals) are:

Green: At least 100% of the minimum commitment.

Yellow: 90-100% of the minimum commitment.

Red: Less than 90% of the minimum commitment.

Program Manager Mass Allocation Status =
L-12-month Requirement or Actual ÷ Allocation

- L-12-month Requirements (or actuals) are:

Green: At least 90% of Program Manager Mass Allocation.

Yellow: 80-90% of Program Manager Mass Allocation.

Red: Less than 80% of Program Manager Mass Allocation.